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Rail Road News

Louis Napoleon upon Railroads.

The President of the French Repubic left Paris on the 2nd September for Epernay, to open that section of the Paris and Strasburg Railway. He made the following remarks :—"Gentlemen, the inauguration of a railway is always a national fete, with which I am happy to associate myself; but the inauguration of the railway from Paris to Strasburg is, in my opinion, a specially important event, on account of the district through which it passes. In fact, in seeing Chateau Thierry, La Ferte, Epernay, one calls to mind the last and heroic struggles of the empire against coalesced Europe; and I said to myself, that if railways had existed at that time, if the Emperor Napoleon had known of steam, never should we have seen foreigners invade the capital of France. Honor, then, to railways; for, in peace they develope commercial prosperity, and, in war they assist in strengthening the independence of the country! Honor, also, to the town of Epernay, which has preserved intact the sentiments of patriotism and nationality! To the town of Epernay!"

Another Line to Boston.

The New London road to Norwich will be in operation in abou two weeks, and on the 15th October a daily steamboat line between New London and the Long Island Road at Greenport, will be in operation, forming a daily line between this city, New London, Norwich, Worcester, Boston, Nashua, &c. The regular train over the Long Island Road to Greenport will be timed so as to meet this new arrangement,

Worcester and Nashua Railroad.

The business over this road has exceeded the expectations of its most sanguine friends. Its earnings in the month of August, were $13,089 69. The freight of flour and grain over it is large.

A National Convention of Delegates from every part of the Republic is called to meet at Memphis, Tenn., on the 23d of October next, for the purpose of aiding the project of connecting the Mississippi River (and thereby the whole country) with the Pacific Ocean, by means of a great central railroad highway.

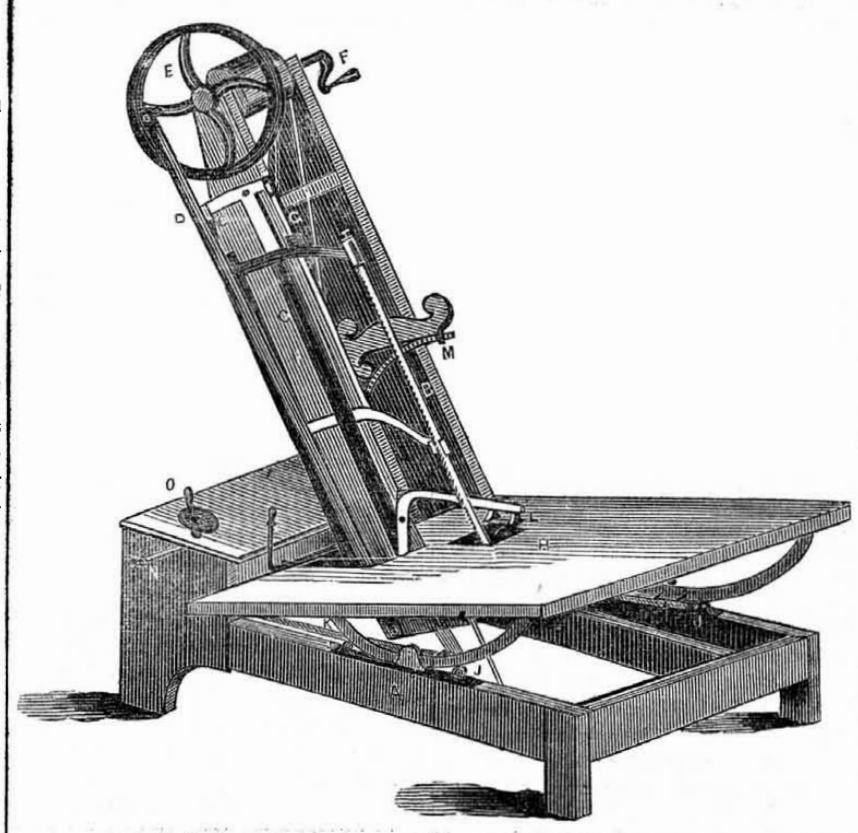
The receipts on the Vermont Central Railroad for the month of August last were $17,457 24, an increase of more than $1,300 over those of July.

It is said that the Portland and Montreal Railroad is under contract to be finished to Sherbrooke in one year, and the whole distance in three years.

The Railroad Bridge at Chatham Centre, N. Y., 126 feet span, was recently destroyed by fire.

There is great activity in the Navy Yard at Brooklyn, at present, and with this activity there are changes in the removal of officers.

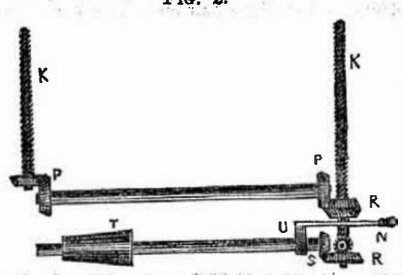
IMPROVEMENTS IN MACHINERY FOR SAWING SHIP TIMBER.---Figure 1.



This machine is the invention of Mr. Oliver Wright, of Rochester, N. Y., who has taken the usual measure to secure it by patent.

Figure 1 is a perspective view of the machine, and figure 2 is a section, showing the gearing that works the table on which the stuff is fed to the saw, to be mitred to any angle. A is a frame, built in any suitable way. B is the saw; it is placed at an angle of about 22 1-2 degrees, in a common frame, C, and worked by a pitman, D, secured on a crank pin of the fly-wheel, E. F is just a handle to show how the power is applied, but there is a fast and slack pulley on its shaft for a band from an engine or water-wheel. The saw frame, C is guided simply up and down, on two metal guides, G G. H is the moveable table; it is placed upon two mitred semicircular standards, I I, below. This table is made to revolve about 22 1-2 degrees each way, forming a mitre, and it is removed by bevel gearing, as follows :—The semi-circular standards, I, fig. 1, pass under a fixed friction roller, at the centre, on each side below, and slide over the top of two other rollers, J J, one before and one behind the central one. Inside of these are two screw eyes or nuts, attached to the semi-circles; into these eyes work two screw rods, K K, (one on each side) the which screw rods, working in the eyes or nuts, move the semi-circles, and consequently the table, H. These screw rods are operated by a band passing from the main shaft, above, to a secondary shaft half way down, (not seen) on which is a cone pulley, from which a band passes over a cone pulley, T, on the driving shaft, U, below, seen in fig. 2. This shaft has a bevel pinion, S, gearing into R, which drives a small shaft coupled to the screw rod, K, which has a bevel pinion on it gearing into P, to drive the other screw rod, K, on the other side, to move the table, H. Every person acquainted with machinery will understand this. N is a clutch handle, to reverse the motion and turn the table back in the other direction; and O, fig. 1, is another handle to move the screw rods, if required, by hand. This machine is simple, and will be easily understood. M is an index, to ascertain

Fig. 2.



the angle at which the saw stands, with the table. There is one point about it which is of considerable importance, in the accommodation of the table to the thickness of the stuff to be sawed. The table is lower in sawing planks of five inches than of one inch in thickness. L are holding dogs on an arm secured to the table. They are placed above two friction rollers, on the table, behind the saw, and hold the stuff firmly to its action. One machine of this kind is in operation in Rochester. It works well, and it will soon, no doubt, be extensively employed. More information about rights &c. may be obtained by letters (*p. p.*) addressed to the skillful inventor.

Good Fortune.

The Trenton State Gazette saye that Mr. Andrew Thompson, a machinist of South Trenton, has suddenly come into possession of an estate in England amounting to about three millions sterling.

[We think that such a tremendous fortune will be "lang o' coming."

Tennessee Iron Manufacture.

Tenneseee has at this time within her lim, its 47 furnaces and 92 bloomeries, forges and rolling mills. In the manufacture of iron she stands as the third State in the Union.

Our Naval Force.

We have at present in the Mediterranean 192 guns, and 1700 men : in the North Sea, 50 guns; on the coast of Africa, 78 guns, and 553 men; Brazil, 70 guns; and a home squadron of 125 guns, aud 1149 men. As well for protecting our commerce in the midst of European revolutions as for the purpose of extending sympathy to the struggling patriots of the old world, the administration seasonably doubled our force in the Mediterranean, which accounts for the presence of such a force in that quarter.

Useful Receipts.

To Keep Silk.

Silk articles should not be kept folded in white paper, as the chloride of lime used in bleaching the paper will probably impair the color of the silk. Brown or blue paper is better; the yellowish smooth Indian paper is best of all. Silk intended for dress should not be kept long in the house before it is made up, as lying in the folds will have a tendency to impair its durability by causing it to cut or split, particularly if the silk has been thickened by gum.

Thread lace veils are very easily cut; satin and velvet being soft are not easily cut, but dresses of velvet should not be laid by with any weight above them. If the knap of thin velvet is laid down it is not possible to raise it up again. Hard silk should never be wrinkled, because the thread is easily broken in the *crease*, and it never can be rectified. The way to take the wrinkles out of silk scarfs or handkerchiefs, is to moisten the surface evenly with a sponge and some weak glue, and then pin the silk with toilet pins around the selveges on a mattress or feather bed, taking pains to draw out the silk as tight as possible. When dry the wrinkles will have disappeared. The reason of this is obvious to every person. It is a nice job to dress light colored silk, and few should try it. Some silk articles may be moistened with weak glue or gum water and the wrinkles ironed out by a hot flat-iron on the wrong side.

Water Melon Rine Preserves.

When the rind becomes a little transparent in the brine, put it into fresh water, for a day and night, changing the water several times; then boil it for one hour, very fast, in fresh water, cover with grape leaves to green them. Take them up; and drop in cold water enough to cool them quickly; then weigh, and to each pound of rind add two pounds of sugar, and boil it rapidly, with a few pieces of ginger. When done, they are very transparent; add, when cold, a few drops essence of lemon.

Ink for Marking Linen, &c., without Preparation.

One ounce of nitrate of silver, one and a half ounces carbonate of soda, crystalized, two dracms, two scruples of tartaric acid, two ounces or q. s. of strong liquor ammonia, half ounce of archil, six drachms of white sugar, ten drachms powdered gum arabac, q. s. distilled water. Dissolve the nitrate of silver and carbonate of soda separately in distilled water; mix the solutions, collect and wash the precipitate on a filter, introduce the washed precipitate, still moist, in a wedgewood mortar, and add to it the tartaric acid, rubbing them together until effervesence has ceased; add liquor ammonia in sufficient quantity to dissolve the tartrate of silver; then mix in the archil, white sugar, and powdered gum arabic, and add as much distilled water, if required, as will make six ounces of the mixture.

Printing Ink.

The following is a good form for the extemporaneous preparation of this ink.

Nine ounces of balsam of copaiba, three ounces of lamp-black, five drachms of indigo, five drachms of prussian blue, six drachms of indian red, three ounces of dry yellow soap. To be ground together on a slab, with a muller, until perfotly smooth.

The Okisto cotton mills, at Elysville, on the Baltimore and Ohio Railroad, were recently offered for sale by the Trustees, $25,500 was offered for it, but as this was not enough it was bid in.

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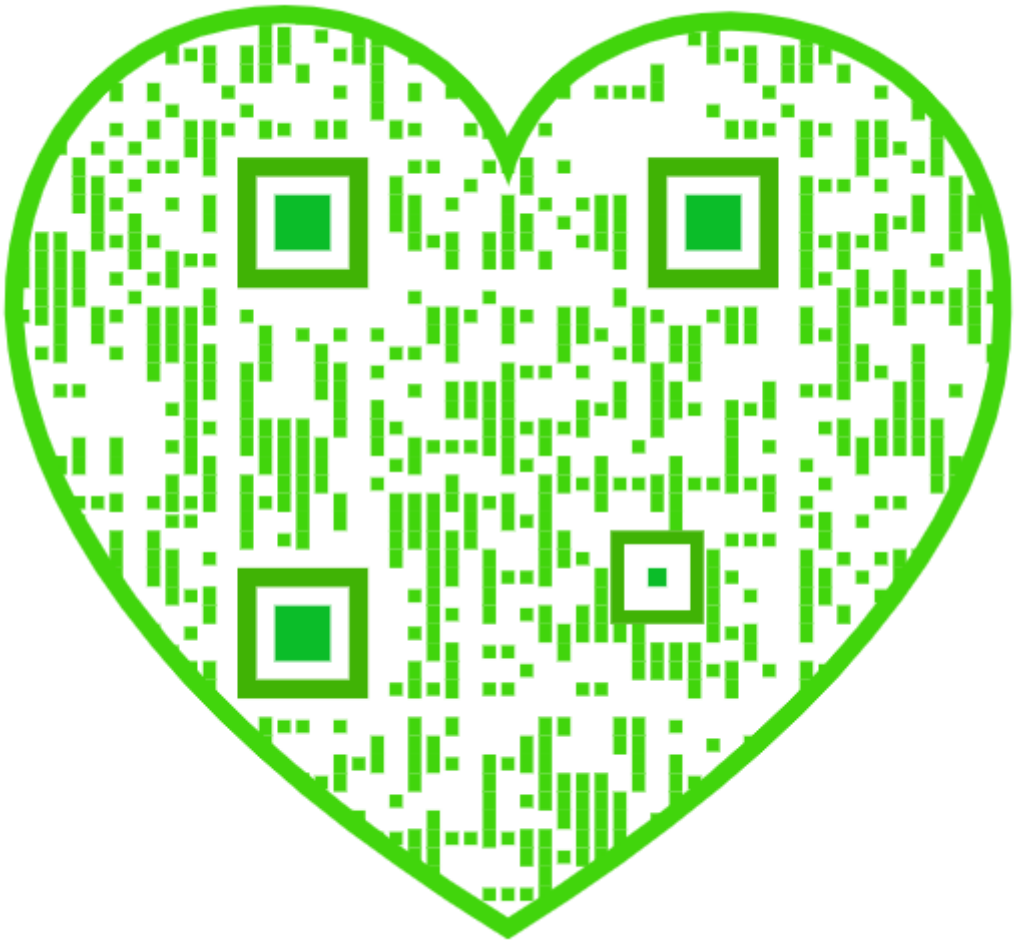

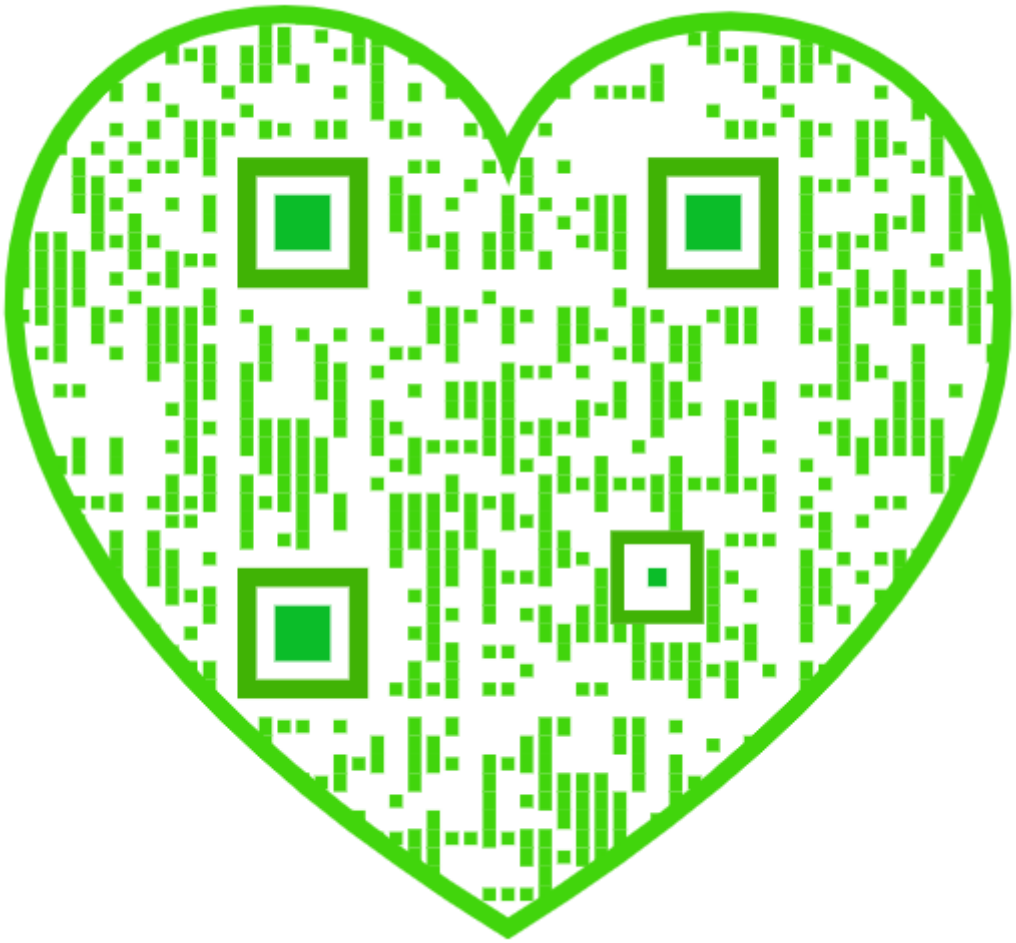

Miscellaneous.

Singular Adventure with a Rattlesnake.

A young man named Geo. Keller, in Union Township, Berks Co. Pa., on the 5th ult., came across a large rattlesnake; arming himself with a stick he made for the reptile and pinned it fast, after two-thirds of its body had disappeared between the rocks. He then very coolly took out his knife, and proceeded to cut off the rattles, but while in the act, the head of the snake found an opening in the rock, and with its body fast, reached round and bit him on the point of one of his fingers. He immediately cut out the bitten part, and wound a string tightly round the finger to prevent the circulation of the poison through his system. The hand and arm soon became enormously swollen. After severe suffering, in which the young man became almost blind, the physicians succeeded in placing him beyond the reach of danger. One of the first acts, after his recovery, was to visit the scene of this disaster, where he found the snake still pinned to the rock. This time he made sure work by killing it outright.

Liabilities of Railroad Conductors.

E. C. Thompson was recently tried at Dover, N. H. upon an indictment for assult and battery, in ejecting a man and his wife from the cars of the Boston and Maine Railroad, at Madbury, who refused to give up their tickets.—The Court instructed the jury that for the purpose of this trial the company had a right to make regulations for their convenience; also if they thought the conductor used more than reasonable violence in ejecting the man from the cars, the Jury might bring in a verdict of guilty. The Jury after a few hours consideration, returned a verdict of not guilty. It was proved that the conductor suffered a little upon the occasion from the teeth and finger nails of thewomen who was taken out.

Another Telegraph Line to Boston.

The telegraph line to Boston via New-Haven, Hartford, Norwich and Providence, using Bain's instruments, and built under the superintendence of Henry O'Reilly, Esq., has been completed. The stockholders are men of large capital, and place unlimited means in the hands of the builders to make it strictly a first-class line, and the proof that it is so, is found that in the fact that instantly the last mile of wire was up the line worked through to Boston perfectly. The office in Wall-st, is elegantly fitted up with plate glass, mahogany furniture, &c.

The tariff of charges will be much lower than on the old line, and the business of telegraphing will now be conducted on liberal terms.

There are now three lines of telegraph between this City and Boston.

This line will be extended to Halifax during the Winter and Spring, and the line from Washington to New York will be completed in about two weeks.

Ohio Cheese.

Large quantities of Ohio cheese are annually taken to and sold at Boston, at good remunerating prices. Quantities of it are also taken to and sold in England. The qualities sent to Boston and England are pronounced equal to any made in the world. This quality of cheese not only pays the manufacturer well, but the cost of transport1,000 miles, as well as the retailer—and yet the consumer is pleased in in obtaining a sup rior article at so fair a rate.

Odd Fellows.

The split which has existed for nearly two years between the New Constitution Lodges and the Old Constitution, in this State, has been settled by the Grand Lodge of the United States, at Baltimore, by ordaining two Grand Lodges for this State, which is to be divided by the Judiciary Districts.

Four ships, the Jas. Connor of Baltimore, Garrick of New York, Forest King of Boston, and the Saranac of Philadelphia, left Liverpool on their last voyage together, and never were out of sight of one another during the whole voyage across.

The Lard and Oil Business of Cincinnati.

In Cincinnati it is calculated that about 11,000,000 lbs of lard will be run into lard oil this year, two-sevenths of which aggregate will make stearine, the residue oil, say about 20,000 barrels of 42 gallons each. Much the larger share of this is of inferior lard, made of mast-fed and still-fed hogs, the material, to a great extent, coming from a distance—hence the poor quality of western lard oil. Lard oil, besides being sold for what it actually is, is also used for adulterating sperm oil, and in France serves to materially reduce the cost of olive oil, the skill of the French chemist enabling them to incorporate from 60 to 70 per. cent. of lard oil with that of the olive. There is also an establishment in that city which besides putting up hams, &c., is extensively engaged in extracting the grease from the rest of the hog, and will probably this year operate in this way on 30,000 hogs. It has seven large circular tanks, six of capacity to hold each 15,000 lbs., and one 6,000 lbs. These receive the entire carcass with the exception of the hams, and the mass is subjected to the steam process, under a pressure of 70 lbs. to the square inch, the effect of which operation is to reduce the whole to one consistence, and every bone to powder. The fat is drawn off by cocks, and the resdum, a mere earthy substance, is taken away for manure. Besides the hogs which reach this factory in entire carcasses, the great mass of heads, ribs, back bones, tail-pieces, feet, and other trimmings of the hogs cut up at different pork-houses, are subjected to the same process, in order to extract every particle of grease. This concern only is expected to turn out this season 3,000,000 lbs. of lard, five-sixths of which is No. 1. Six hundred hogs daily pass through these tanks one day with another.

The stearine expressed from the lard is used to make candles for being subjected to hydraulic pressure, by which three-eights of it are discharged as an impure oleine; this last is employed in the manufacture of soap. 3,000,000 lbs. of stearine have been made in one year into candles and soap in these factories, and they can make 6,000 lbs. of candles per average day throughout the year,

Hints to Bald Headed.

A refined civilization brings with it a train of physical evils, which it is in the province of science to control or subdue. Our tight hats, our warm rooms, closely fitting caps, silk night-caps, from which the perspirable matter cannot escape, by their combined agency, in connection with other influences not always easy to define, bring off the hair prematurely, and turn it gray, sooner than personal vanity is willing to exhibit such evidences of decay. And this is not all, the skin is actually in a low state of disease, the effects of which are recognized in the accumulation of drandruff—desquamation of the epidermis. The bulbs of the hairs are inflammed, also from the same cause, and from year to year the hair degenerates and becomes thinner, and not unfreqently ending in baldness. On all that part of the head not covered—viz.: from the backside, between the ears and on the temples—the hair generally remains to extreme old age, however much the vortex may be denuded. If females wore equally tight coverings, their hair would probably suffer very much in the same manner; but their light airy bobinets admit of ventilation, and hence a bald-headed women would be a phenomenon. Who ever saw a bald-headed Indian? We have had an opportunity of seeing various tribes, in all the freedom of their unrestrained savage life—but a sparse head of hair we have never noticed. Atmospheric e posure conduces to the luxuriance of the hair and a healthy condition of the scalp.

[The above is from the Boston Medical and Surgical Journal. We copy it because we do not believe that it is sound. A bald-headed female is not a phenomenon, and there are plenty of bald-headed men who never wore a night-cap all their lives, and who lost their hair at an early age; and we know of a case at present that cannot in any possible way be attributed to any of the causes mentioned above. There are some races, and there are individuals, who constitutionally have more capillary energy than others. There are differences in these things, just as there are in those who have flat and those who have beautifully arched feet. The remedies for baldness and toothache are innumerable. Cleanliness and healthful exercise are, no doubt, good preservatives; but fevers and other diseases, we believe, are the principal causes of this evil,—and this puts us in mind to give a most excellent receipt for making dandruff fly. Take an ounce of borax and dissolve it in three quarts of water and a little spirits. Wash the head with some of this every second morning, and take our word for it the dandr ff will soon be like the Dutchman's geese, "found missing." This should be kept for a constant wash. Those who wish to dye their hair or whiskers black can do so by making the nitrate of silver into a paste with water, and applying it to the hair. It is no doubt hurtful to the growth of the hair, but those who are foolish enough to try the experiment can do so, only they will find out that the trouble will overpay them for the pleasure.

The Colonies of Great Britain.

The North American Possessions of Great Britain, which include Canada, Nova Scotia, Prince Edward's Island, New Brunswick, Newfoundland, and Bermuda, entailed a total expense, for the five years ending the 31st March, 1847, of £2,646,094 for the pay of troops and commissariat expenses; our West Indian possessions entailed, during the same period, a cost of £1,779,337 for the same purposes; our Mediterranean and African possessions, including Gibraltar, Malta, the Ionian Islands, the Cape Colony, Sierra Leone, Gambia, the settlements on the Gold Coast, and St. Helena, entailed an expense of £3,170,988; and the Australian and miscellaneous possessions an expense of £2,052,935. It follows that the colonial empire of Great Britain entailed upon the mother country for the five years ending the 31st of March, 1847, a gross total cost of £9,742,354, solely for the pay of her Majesty's troops and for commissariat expenses, being on an average nearly £2,000,000 per annum.

[The above is from the European Times, and the statement might lead many people to believe that Great Britain had shelled the money out of her own pocket; but how did she get it? From her colonies. Take them away and what would be her commerce?

A Deserted Village.

Nearly half-way between Millville and Tuckaboe, N.J., the traveller suddenly leaves the almost interminable waste of stunted pine and oak, the long sandy road, and the oppressive heat, and, as if by magic, a romantic hamlet, nestling beside a lake, bursts upon the view. Here he may rest his jaded horses beneath the overhanging willows and enjoy the scene to his heart's content. The village is known as "Cumberland Works," and consists of about twenty-five cottages, with several spacious buildings, once occupied as Mills, Iron Foundries, Forges, etc. But a deep and impressive silence now hangs over the place; the tenements are dilapidated and leaning as if ready to fall to the earth. The water-wheels are motionless; the furnaces are no longer glowing; the trip hammer, that great heart which once beat night and day, has ceased its pulsations, and all save beauty has departed. The Iron Works were formerly conducted by Edward Smith, Esq., of Camden, but owing to the rapid decrease of timber in the neighborhood, were abandoned some thirteen years since. The timber is now rapidly growing, and if the above was the only reason for blowing out the fires, it will not much longer exist. No one can stop to water his horses by the

"Moss-covered bucket which hangs in the well,"

or linger a moment beneath the drooping willows, without calling to mind in its full force and meaning, Goldsmith's admirable description of "The Deserted Village."

Ireland and Her Misery.

An article in Blackwood says that at least 250,000 persons perished by famine in Ireland, in 1847, in consequence of the loss of the potato crop, notwithstanding the British government expended fifty millions of dollars in purchasing food for the population, and extensive donations were received from abroad.

Hats, Hats.

Persons attending the Fair, will find their appearance very much improved by wearing one of Knox's superb tiles. We tried the experiment a few days since with the most gratifying result. Knox is a mechanic, and knows how the materials should be combined to produce, not only an elegant appearing hat. but one that always pays the wearer for the money expended. What adds more to the wardrobe of a gentleman, than a good hat? We answer, nothing.

Notice.

N. P. Greene, of Nashua, N. H., J. Gillespie, of Geneva, N. Y., and Samuel R. Tufts, of Milwaukie; Wis., are authorized Agents for the Scientific American. Any business intrusted to them will meet prompt attention.

Paine's Electric Light.

We have received a communication from Mr. Paine, on this subject, which will appear next week.

Facination of Danger.

At the siege of Gibraltar, Lieutenant Lowe of the 12th regiment, a superintendent of the working parties, lost his leg by a shot, on the slope of the hill under the castle. He saw the shot before the fatal effect, but was fascina ted to the spot. This sudden arrest of the faculties was not uncommon. Several instances occurred to my own observation, where men totaly free have had their senses so engaged by a shell in its descent, that though sensible of their danger, even so far as to cry for assistance, they have been immovably fixed to the place. But what is more remarkable, the men have so instaneously recovered themselves on its fall to the grouud, as to remove to a place of safety before the shell burst.

Women Stronger than Oxen.

A distinguished physician says: I anticipate the period, when the fairest portion of the fair creation will step forth unencumbered with slabs of walnut and tiers of whalebone.—The constitution of our females must be first rate to withstand in any tolerable degree the terrible inflictions of the corset eight long hours every day. No animal could survive it. Take the honest ox, and enclose his sides with hoop poles, put an oak plank beneath him, and gird the whole with a bed cord and demand of him labor. He would labor indeed but it would be for breath.

A Curious Fact.

The whole population of the United States could be compressed into the space of one mile square, and each individual be allowed sufficient room to breathe in. Fifteen inches square would suffice for this. There are 1760 yards in a mile, which multiplied, give 63,360 inches; and this product divided by fifteen, the number of inches of space occupied by each individual would place 4224 of them in a row to extend the length of a mile; and the same number of row to compete a square mile would consequently number 17,842,576.

Native Wines.

The Pennsylvania Inquirer states that vineyards are springing up everywhere in that State. In the county of Berks 60,000 gallons of wine are made per annum. At the Syracuse Fair, specimens of American champagne, manufactured in the immediate neighborhood, also a specimen of port wine, so called, manufactured from a native grape found in the vicinity of Columbus, Ga., were exhibited. No spirits or any kind of coloring matter was mixed with it.

The weather is now most delightful, and our city is filled with strangers, who from the far away inland places of our country, enjoy here the fresh gales of the Atlantic.

By late news from Europe, trade was good in England, crops looked well and provisions were cheap.

The beautiful village of Owego, in this State has been nearly destroyed by fire.

The President of Hayti a dark government, has assumed the purple. *He* cares nought about equality.

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For the Scientific American.

Theories of Electricity.

[Concluded from page 11.]

8. A. D. 1733.—A more perfect theory was now proposed by the French philosopher, M. Du Fay. It ascribes all electrical phenomena to the agency of two fluids, highly elastic and imponderable, the particles of which are [illegible]ent, but attractive of each other. Bodies when unexcited have an equal quantity of each fluid, but by friction these are separated, and the body contains more of one than of the other. By their re-union the body is said to be excited. The fluid which accumulates on glass and analogous bodies is called vitrious, and that from amber and analogous bodies, resinous electriciiy.

9. A. D. 1745–7.—With some, and particularly Mr. Wilson, the chief agent in all electrical operations is Newton's ether, which was supposed to be more or less dense in all bodies, in proportion to the smallness of their pores, except that it is much denser in sulphurous and unctions bodies.

There were some also who explained the phenomena of electricity upon chemical principles. They believed in the existence of two distinct and positive fluids; but instead of a mechanical operation, they considered all their sensible effects as arising from chemical affinity and union. Dr. Gibbs adopted a chemical theory. He supposes that oxygen gas is produced by the union of positive electricity with water, and hydrogen gas by the union of negative electricity with water.

10. A. D. 1748.—The science of electricity was now destined to receive the most brilliant accessions from the genius of Franklin, (for the "spirit of electricity" had passed from Europe to America.) The admirable hypothesis he advanced afterward formed the ground-work of the theories of Æpinus and Cavendish. The Doctor supposed that all the operations in electricity depended upon one fluid, *sui generis*, extremely subtle and elastic, self-repellent, but attracting all matter. The ultimate particles of matter are considered as also self-repellent when deprived of, or possessing more than their natural quantity of electricity, and as naturally attracting when they are in opposite conditions. The increase or diminution of this fluid, which is uniformly distributed in the natural state of bodies, produces electrical excitement. Positive electricity implies a redundancy, and negative electricity a deficiency of the fluid. Englishmen contend that before the notice of Franklin's discovery reached Europe, Sir Wm. Watson had communicated to the Royal Society of London a theory of plus and minus in electricity.

11. A. D. 1750.—About this time the ingenious Abbey, John Anthony Nollet, of Paris, brought forward a theory, which was never received by any other philosopher. He imagined that when an electric is excited, the fluid, (of which he admits there is but one,) has two opposite motions, an afflux to the electric and efflux from it; that the affluence drives all light bodies before it, by impulse, to the electric, and the effluence carries them back again. That every body to which electricity is communicated, has two kinds of pores, for the emission and reception of the electric matter.

12. A. D. 1750.—Mr. Ellicott, F. R. S., of London, from electrical phenomena, drew the following conclusions: first, That they are produced by means of exhalations, which, by exciting the electric, are put into motion and separated from it. Second, That the individual particles repel each other; and, third, That there is a mutual attraction between these and those of all other bodies.

13. A. D. 1758. Mr. Symmer, of England, concluded from his experiments that there are two distinct fluids; that electricity consists in the possession of a larger portion of one or the other power than is necessary to maintain an even balance with the body; and that the electricity is negative or positive, according as the one or other power prevails.

14. A. D. 1750.—Professor, Jallabert, of Geneva was the author of a theory, in which he supposes that a very rare and elastic fluid fills the universe and the pores of all bodies, tending always to an equilibrium, by filling up any vacuities that may be occasioned.

15. A. D. 1758.—The Russian philosopher, Æpinus, adopted the Franklinean theory, but founded it on these principles: That the molecules of the electric fluid are self-repellent, attract, and are attracted by, the particles of all other matter, with a force inversely as the square of the distance: that the fluid exists in the pores of bodies, moving with no obstruction in non-electrics, but with difficulty in electrics; that electrical phenomena arise from the transference of the fluid from a body containing more, to another containing less of it, and from its attraction and repulsion, where no transference takes place.

16. A. D. 1769.—The theory of Mr. Cavendish, of London, and the preceding one, are essentially the same, but were framed without any communication between these philosophers. The former is an extensive and more accurate application of that of Æpinus.

17. A. D. 1795.—Prof. Russell, of Edinburgh, considered the electric fluid as a compound, containing elementary fire, and therefore is elastic and self-repellent in its particles; that the force acts at a distance, and hence bodies having more of the fluid than the spaces around them, repel each other; that the electric fluid is connected with bodies by attractive and repulsive forces; that the principal ingredient thereof is electricity, which is united with the elastic fluid by chemical or electric affinity.

18. A. D. 1798.—The French naturalist, De Luc, referred all the phenomena to the operation of a compound expansive fluid, consisting of electric matter, the gravitating part, and of the electric deferent liquid, or carrying fluid.

19. A. D. 1847.—Dr. Robert Hare, of America, objects to the theories of Franklin and Du Fay, and explains electrical phenomena by statical or undulatory polarization. In the summary to his paper he says: "A charge of frictional electricity is not due to any accumulation nor deficiency either of one or of two fluids, but to the opposite polarities induced in imponderable ethereal matter, existing throughout space, however otherwise void, and likewise condensed more or less within ponderable bodies, so as to enter into combinations with their particles, forming atoms, which may be designated as ethereo-ponderable.

J. W. O.

Men With Tails.

In this day we must not be surprised at any thing wonderful, fanciful, incredulous, apocryphal, lunatical, or what not. Above all the places in this weary, wicked world, for hunting humbugs, the City of Paris certainly carries the broom. America has quacks, and England has quacks, but what are American quacks or English quacks, or humbugs either, to the French kind? Nothing, positively nothing. We are not running down the French for this. No such thing. They are too imposing in their greatness to sneeze at them; and although some of our red hot radical reformers call the French Republic a *humbug*, yet not us, indeed. We think with our old friend Louis Philippe on that point. Nobody can make him believe that the French Revolution or the Republic are humbugs. He knows too much for that.

But the greatest that has yet been made in France, or out of it, is nothing less than a new tribe of men with tails, in Africa.

A certain Col. Ducouret has penetrated away down, and up, and down again, into Africa, and found out these fellows. They are in a place called Soudan, and the brave Col. has sent home a drawing of one of them, which has been exhibited, together with a description, at a meeting of the Academy of Sciences. The drawing is made of a slave belonging to a Mahomedan Chief at Mecca. He could speak the Arabic language well, and was a sincere Mahomedan, (but about that he might as well have been anything else.) But let us present the description of this race of beings. as per report of the Academy:

"The Ghilanes are a peculiar race of negro, which have a strong resemblance to the monkey; much smaller than the usual race—they are rarely more than five feet high. They are commonly ill made; their bodies are lean and seem weak; their arms long and slim; their hands and feet are longer and flatter than those of any other of the human species; their cheeks project, and their forhead is low and receding: their ears are long and deformed; their eyes are small, black, piercing, and twinkle constantly; their noses are large and flat; their mouth wide, and furnished with teeth very sharp, strong, and of dazzling whitness; their lips are full and thick, their hair curled, but not very woolly, not thick, and it remains short. But what particularly distinguishes them is the prolongation of the vertebral column. This gives to each individual, male or female, a tail of two or three inches long."

In the Report is a portrait of the slave refered to above.

"He was thin and dry but nervous and strong. His skin was black-bronzed, shining soft to the touch like velvet. His feet were long and flat; his arms and legs appeared feeble, but well supplied with muscles. His ribs could easily be counted. His face was repulsively ugly. His mouth was enormorous, his lips thick, his teeth strong, sharp and very white; his nose broad and flat; his ears long and deformed; his forehead low and very receding; his hair not very woolly nor think but nevertheless curly. He had no beard, and his body was not hairy. He was very active and handy. His hight was about five feet. His tail was more *than three inches long*, and almost as flexible as that of a monkey. His disposition, setting aside the oddity of his tastes and habits, was good, and his fidelity was above all praise."

Effect of Chloroform on Sensitive Plants.

Dr. Maret states, in the "Transactions of the Physicial Society of Geneva:"—"If a drop or two of pure cholorform be placed on the point of the common petiole of a leaf of the sensitive plant, the petiole is soon seen to droop, and directly afterward the leaflets collapse in succession, pair by pair, beginning with those that are situate at the extremity of each branch. A minute or two afterwards (the time varying with the irritability of the plant) most of the leaves near that on which the chloroform was placed, and situate below it on the same stem, drooped one after the other, and their leaflets collapsed, although not in so decided a manner as those of the leaf to which the chloroform was applied. After a certain time, which varies with the condition of the plant, the leaves gradually open; but when touched they are no longer irritated so as to collapse, as they do in their natural condition. They remain in this passive state, benumbred as it were, for a considerable time, and it is not generally until some hours have elapsed that they regain their original sensibility. If, however, while in this passive state the leaves be again touched with chloroform, they collapse as before. It is not till after several doses that they loose their sensibility entirely, or at all events until the next day; sometimes they wither completely after too many applications of the chloroform. The purer the chloroform, and the greater the excitability of the plant, the greater are the effects produced. If instead of putting the chloroform on the base of the petiole, a little be dropped on the leaflets near the extremity of a branch, the effect is very nearly the same as before. The leaflets on the branch collapse pair by part, the common petiole droops, then the leaflets on the other branches approach others in their turn. At the end of two or three minutes, the nearest opposite leaf, and, if the plant is active, most of the other leaves lower down on the same stem, follow their example. When, after a time, the leaves re-open, they manifest the same sensibility as before.

Transmission of Sound; and Electricity.

During a lecture delivered by Dr. Faraday at the Royal Institution, two remarkable experiments were exhibited with a view to show peculiarities in the transmission of Electricity. A long strip of wood was suspended from the ceiling of the lecture room, touching a wooden box at one end. A tuning fork was struck and applied to the other extremity of the connected strip of wood, when presently a loud musicial note issued from the box, though the sound of the fork at the other end was inaudible. The next experiment was still more curious. A rod connected with a pianoforte in a room beneath came through the floor of the lecture room, and on the top of the rod Dr. Faraday applied a guitar to act as a sounding board. When the piano was played, the sound seemed to issue from the guitar as loudly as if the instrument were in the room, but the instant the connection was broken between the rod and the guitar, no note could be heard. Another analogy between vibrations producing sound and electricity is the sensation, resembling that of an electric shock, communicated on touching a vibrating bar of metal or a vibrating string. The school trick, of fixing a wet string or piece of tape round the waist, and then pulling it through the fingers, were practiced by Dr. Faraday on his assistant, for the purpose of showing how readily the sensation of an electric shock may be imitated by vibrations.

Extraordinary Feats of Swimming.

The art of swimnimg appears to be as natural to man as it is useful, and in some cases, necessary for the preservation of his life. Cleanliness and exercise, both so necessray to health are combined with a high degree of enjoyment in the practice of the art.

The capability of the human race, civilized or savage, for swimming, is generally understood. The human form is better adapted to it than that of any animal not absolute aquatic; and the inhabitants of warm latitudes excel most amphibious animals in the water, flighting with the shark, diving with the alligator, and remaining for longs periods in profound depths in search of coral, pearls, and other treasures of the sea.

The pearl-divers of Ceylon will descend to the depth of sixty feet; and, although such diving is accomplished with a great pressure of water and violent exertions, they do not seem to suffer from it, as they make forty or fifty plunges a day, and at each plunge bring up about a hundred oysters.

The swimming couriers of Peru cross the continent, hundreds of miles, swimming down the rivers, their despatches inclosed in a turban on their heads. They swim day and night, aided only by a light log of wood.

In Prussia, swimming has long been a military exercies, whole regiments being instructed to swim in line, fully equipped, to wheel in column, and even to load and fire in the water.

A few years since, the Viscount de Courtivron exhibited some experiments of this character in the Seine at Paris. He went into the water accoutred as an infantry soldier. After swimming thirty fathoms from the boat, he raised himself in the water and fired a musket at which signal one of his pupils sprang from the Pont Royal, a bridge into the Seine, from a height of sixty-four feet, and carried to M. Courtivron a tin box containing dispatches. He read the papers, gave the signal, and was joined by a clase of sixty-four pupils, who in the water executed a series of military movements.

Dr. Bedall, an English gentleman, swam for a wager, between Liverpool and Runcorn, in 1827, a distance of twenty-four miles, which he performed at the rate of six miles an hour with the tide, probably.

Swimming was a part of an old Roman's education, and so it should be part of every person's. Of all the swimmers in the world, for performing dangerous feats, none can equal the women of the Sandwich Islands.

How important it is, in a country like ours that every man should learn how to swim! Storms strew our sea-coasts with wrecks—steamboats are liable to accidents from collision, explosions or fire, on our rivers and lakes—pleasure boats frequently upset, and numerous accidents occur from the sudden breaking of the ice in the winter. The necessity of saving one's own life by swimming, or the opportunity of saving the lives of others. may happen to any one, and to many these things must often occur in the course of their lives.

S. Gurney, the English Quaker Banker, prophecied at the Peace Congress, the future bankruptcy of England.

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New Inventions.

Self-Lighting Segars.

A patent has been taken out in England, by a Mr. Jarvis Palmer, of Camberwell, in the County of Surry, for the following way of making self-igniting segars, without any offensive odour. Take 18 parts, by weight, of charcoal, 32 parts of salt prunella, 8 parts Venetian red, 10 parts cascarilla bark, 1 part of oxymuriate of potash, and 14 parts of water, in which is dissolved some gum-arabic, or glue will answer. When this is in a fluid state round pine splinters are dipped two or three times in it, when they are dried, and the dipped parts are then broken off and inserted in the ends of segars. The segars thus furnished are lighted by simply rubbing this nib against any suitable substance, such as a hard wall.

It has often puzzled us to account for the number of patents that are taken out in England, especially when we see so many that are apparently of so trifling an interest and nature. But we have been told by a foreign patent agent, that the majority of them pay well. Here we have, in the above patented self-igniting-segar, an example of what is done there. The sum which the inventor paid was about $500, as much as is paid for 16 patents in our country.

Improved Wagon Spring.

Mr. E. B. Rounds, of Swanton Centre, Vt., has made a good improvement on Maxson's Patent Wagon Spring, which will make it altogether a superior article. The Maxson Spring was a helix with a fork passing through it connected to the shoulder or lever. This arrangement made a great noise by the spring touching the fork, and its employment on that account was objected to by many. The improvement of Mr. Rounds, and for which he has taken measures to secure a patent, has no fork passing through the helix or coil, but the coil spring has one end made with a socket to receive a small arm that clasps with the lever on which the wagon box rests, and the whole is enclosed in a neat cast iron box. This improvement, on an otherwise first rate spring, makes it a perfect article for the purpose to which it is applied.

Improved Cloth Folding Machine.

Messrs. Carey & Bagley, of Amesbury, Mass., have invented a new cloth-folding machine, which embraces new features from others in use, and for which they have instituted measures to secure a patent. The cloth table is in the middle of the machine. upon which the cloth descends vertically from a roller above; when it is folded by two rocking square-sided friskets, which alternately fold down the cloth neatly on the table, like a man folding it down with one arm after the other, right and left, while there are small catch-jaws below, that retain each fold snugly down until the other fold is ready to be laid down, when each jaw alternately rises to receive the fold, and then closes on it, and so on continually.

Discoveries in Art.

A French paper states that Mons. Jauron has just discovered the famous Naiad, all trace of which has been lost for so many years. It was discovered pure and unimpaired in the subterranean vaults of the Louvre, where it has lain ever since 1824. What is perhaps, equally curious, although perhaps, less valuable is the discovery, in the same hiding-place of the famous apparatus for lighting the statue gallery at night, which was executed by order of Napoleon, and of which all trace has been lost ever since the Restoration. This discovery was hailed with delight by all lovers of art, and the apparatus is to be applied immediately to its original purpose. A grand *soiree* will be given in the course of the month to artists of all denominations who may be at the time in Paris; all nations are to be invited, and the experiment tried for lighting the gallery. The apparatus is said to have cost the government under the Empire more than 100,000 francs, and to be the result of the united efforts of all the great *physiciens* of that day.

Water Telescope, or Sub-Marine Examiner.

Mr. Willard Day, of Brooklyn, N. Y., has invented a new and beautiful improvement on Telescopes for submarine examinations, which will make the instrument of real utility and one of the most useful to every vessel that sails on the ocean. The instrument is a telescopic tube, with a mirror in a small water-tight chamber at its bottom. This mirror can be moved through ninety degrees, to receive the images of objects in the water, and which can be perceived by the person look ng down. There are lamps in small side chambers (water-tight) which are fed with fresh air through a small aux liary tube, the smoke escaping by another, which thus enables explorations to be made at night, as well as through the day. There are a number of little essential contrivances to render it a perfect instrument, which we will try and describe by an engraving, at some other time not far distant. The instrument could be used to examine the whole bottom of a vessel at sea, if it leaks, in order to ascertain the extent of the damage, and provide a remedy in the most suitable manner.

Revolving Road Scraper.

Mr. Elisha Randall, of Edmeston, N. Y., has invented a new Road Scraper, which revolves on an axis, and is retained firmly between the arms or brakes, while scraping, but when it is full by scraping up the earth or mud, by slightly elevating the arms the scraper revolves, throwing out the mud and allowing the scoop on the upper side of the axis to take the place of what was before the lower scoop. The whole apparatus is very simple—no extra springs nor anything of that kind is used. Measures have been taken to secure a patent.

IMPROVED SPARK ARRESTERS FOR LOCOMOTIVES AND STEAMBOATS.

Figure 1.

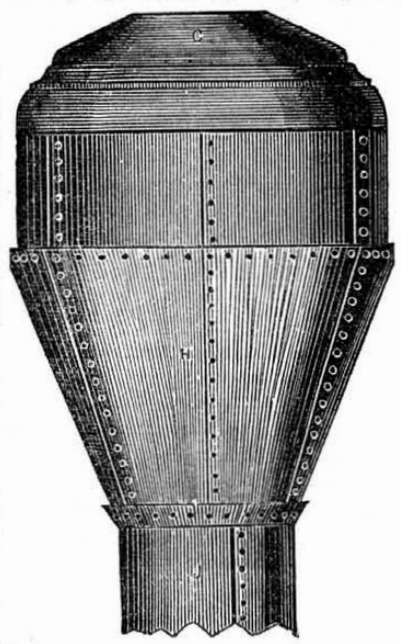
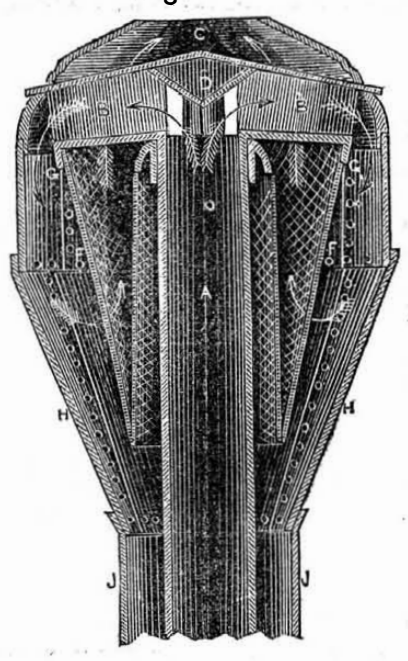
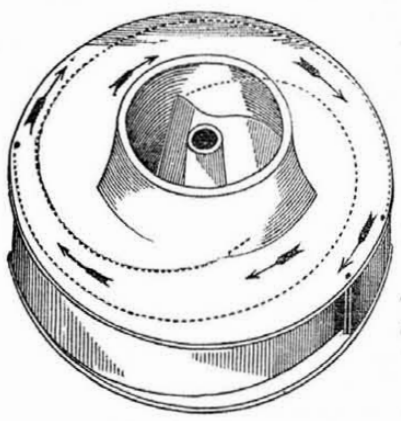


Figure 2.



This apparatus, as improved, is the invention of Messrs. Z. C. Ladd & Edward Ivers, of Boston, Mass. Figure 1 is the outside of the apparatus, and figure 2 is a vertical section cut down through the middle. J is the part attached to the main smoke pipe; H is the case and C is the cap, as represented in fig. 1. The same letters in fig. 2 refer to like parts. The arrows indicate the course of the smoke. A is a central pipe through which the smoke comes direct from the boiler furnace. B B are a series of small chambers extending around, with op nings between them, communicating with the vent of the cap; D is an inverted conical bonnet, which deflects the sparks to the sides, through the chambers, B, into a large chamber or receptacle, G G, formed between the tube, A, and the outside casing. The sparks fall down here, and can be easily cleaned out by a door below. F F is a wire gauze screen; it is formed and attached to the case, as represented, forming a chamber between its sides, inside. Through this the smoke must pass to escape, and it is now represented as doing so by the arrows. It escapes to the outside through a series of small openings arranged around between the chambers, B B, from thence the smoke escapes at the top through the cap, C. By this apparatus the sparks are completely sifted from the smoke. Measures have been taken to secure it by patent; and more information about rights, &c., may be obtained by letter (*p. p.*) addressed to the inventors.

American Turbine Water Wheel.



This is an engraving of T. R. Tinby's Water Wheel. It is made with eccentric flanges, indicated by the dotted lines, and the arrows indicate the course of the water. This wheel receives the water at its centre, on a gradual curve, from a vertical to a horizontal. On this curve, the water is deflected so as to impinge with the greatest momentum, against two eccentric flanges, presenting surfaces gradually receding from the centre, and gradually diminishing in their eccentricity from the centre to the circumference, running in an eccentric route entirely around the wheel; the water acting with a powerful centrifugal force, from the centre to the circumference, at which it is discharged in two tangent jets, after passing over a surface of nearly 25 feet.

The advantages of this wheel are briefly the following:—The small amount of water required for its use; its consequent unrivalled power; its uniformity of motion; its adaptation to different heads of water; it is unaffected by back water; the comparative small expense attending its erection.

This wheel has a very high character from those who have used it. W. P. Rathbone, Esq., of Valatie, Columbia Co., N. Y., certifies that he uses one 4 feet in diameter, venting 110 inches of water under 7 feet head, and that its expense is less than any wheel known to him.

Mr. R. Dederick, of Niverville, Columbia Co., N. Y., owns the rights of the States of Massachusetts and New Hampshire, and the Counties of Westchester, Putnam, Dutchess, Columbia, Rensselaer and Washington, in New York State.

All orders and communications addressed to them (*p. p.*) will be promptly attended to.

Page's Windmill at Washington.

On the Island at Washington there is erected a large and handsomely finished self-adjusting windmill, containing thirty-six sails, each twelve feet in length, and spreading over an area of fifteen square feet. The mill is capable of affording seventy-two horse power when propelled by a six mile breeze. This power is employed night and day, carrying on the various operations of a mill, [illegible] runs of stones, adapted to the grinding [illegible] all sorts of grain.

By this process about two hundred bushels of corn and rye meal, dyspepsia flour, shorts, bran, etc., are made ready for our market daily.

In addition to the grain mill, a portion of the power of the sails is expended in turning the machinery of a large workshop for the manufacture of the "self-adjusting windmills," five of which have been recently made and sent to farms, in Virginia and Maryland, where water power is not conveniently obtained.

New Plan of Reaping.

A trial has been made at Genlis, in France, on a new reaping instrument of the scythe kind. It is of the same form as the scythe blade, though a little smaller and more curved, and is fixed with a strap to a very short handle. The reaper makes use of it with his right hand by an easy movement, causing little fatigue. He has in his hand a hook fixed to the end of a small handle of very light wood, with which he holds the wheat while giving the cut with the scythe. This instrument cuts as close to the ground as may be desired, does not shake the ears, and consequently does not cause the grain to fall out. The reaper does not want (as is the c se in using the rake scythe) an assistant to follow him to pick up what is left behind; his hook performs the office with the greatest facility, and allows nothing to fall, and collects the grain into bundles of the required size with surprising regularity.

It is said by foreign papers that this instrument completely surprised the agricultural laborers of France, by the quantity and quality of work which the laborer performed with it. With the exception of the hook for the left hand, however, it must be the same instrument that is named the *scythe sickle*, which is employed by the harvest laborers of Britain and Ireland, and apparently with as good effect as the new French scythe.

Improvement in Making Flour.

Mr. D. P. Bonall, of Tecumseh Michigan, has recently made some improvements in manufacturing flour which, in one sense, are valuable. The way it is effected is by placing an auxiliary run of stones so as to receive the entire body of the "offal," on its passage from the upper or first merchant bolts. The stones are fitted to run from 300 to 400 revolutions per minute, and the feeding of the stuffs made uniform and perfect by a very simple combination of machinery.

After the "offal" is thus ground or severely scoured, it is then passed into the lower bolts or dusters, when the flour is taken out and sent to the "cooler," or first bolts, to be uniformly mixed in regular proportions, with the superfine flour, and the remainder separated for feeds.

Oil Painting Daguereotype.

Portraits in oil, of any size, an English paper says, are now taken by a photographic process, in a sitting of half a minute. The process is called Photo-Prosopon, and is wonderfully doubtful to us.

Morse's Instruments on the O'Reilly Line.

The *Tribune* says that Mr. O'Reilly has made a contract for the Morse's Instrument, to be used on the line to Albany, on the west bank of the Hudson. The price paid is $25 per mile.

Accounts from China state that the British have been making a close alliance by treaty with the Sultan of Borneo, by which they have the British title to Labuan confirmed, together with a number of other adjacent Isles. The British have also acquired many other advantages over the Sultan.

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Scientific American

NEW YORK, OCTOBER 6, 1849.

Real Revolutions.

What a curions world this is, of ours. During the past two years the public mind has been agitated like a boiling caldron. First we had the war in Mexico, and then a continual excitement was kept up until it was finished. Then we had the knock down argument of the Parisians against the rule of Louis Philippe. Then came the great fight which lasted for three days, in Paris, and ending in the overthrow of the Red Republicans. Then came the grand row in Ireland, about which so much was done—not in the right way. Then came revolutions in Genoa, Venice, Rome and other cities, and also in those strongholds of despotism, Vienna and Berlin, and throughout the whole German States; Hungary raised her patriotic banner, and flung back in broken fragments, the armies of her Austrian foes, until the *bear* of the North hugged the Magyar between his *huge paws;* and now "order reigns in Warsaw."

Few, very few, revolts end in successful revolutions. All history is evidence of this. Our revolution was signally blessed by the Great Ruler of Events. But there are other revolutions besides the downfall of governments and dynasties,—revolutions which are real in their effects upon society. We mean the triumph of art and discovery. The discovery of this continent by Columbus, did more to advance civilization than a thousand battles. The discovery of the Art of Printing has done more for mankind than all the wealth lavished in building monuments, or all the blood shed in maintaining the rule of crowns. The discoveries made in Astronomy, Electricity, Mechanics, Optics, Geology—in the whole circle of the Sciences, have won victories without bloodshed, and produced real, tangible revolutions. How pleasing to contemplate the t iumphs of genius when directed to improvement in the arts, in comparison with contemplating the victories of heroes with their banners stained in blood. What were the battles of Alexander to the problems of *Euclid,*—and what is the fame of Wellington to that of Watt? What a real revolution has been produced within a very few years among ourselves, in the mode of transmitting news. An hour ago, we may say, the steamship arrived at Halifax from England, and in another one, we will be reading in a newspaper an account of some of the events which transpired in Europe during the past week. Steam is a greater reformer than the sword—electricity than the cannon,—the printing press than the forum. Inventors have produced real revolutions—the arts of peace are those of progress also. Mighty works are yet to be done for the good of mankind by you, ye sons of invention; ye wield sceptres more powerful than those of oil anointed kings.

New York Evening Schools.

There is no city nor place in the wide world where young men of every class, apprentices, &c., can acquire a sound and useful education, at so little expense, as in this city. The city provides the means of educating apprentices and others, free of charge, during four months of Fall and Winter. On the first evening of this month, eleven evening schools were opened for young men, and five for young women These schools are to be under the care of experienced and skilful teachers, and provided with every facility for giving a thorough course of instruction to the pupils, and will be continued for seventeen weeks. We advise all apprentices to attend these schools. Neglect not the precious opportunity of acquiring all the knowledge you can while young. A good education is more precious than fine gold. An uneducated person, in our day, never can be a great man, although he may have weal h in abundance. We regret to be informed that there are thousands of young men in our city who attend balls or play-houses every evening. We hope that young persons in those families which take the Scientific American, know and practice better. There is a great difference between innocent and wicked amusements. It is not impossible to blend enjoyment with instruction.

Interesting Patent Case.

We learn by the Cincinnati Times that a very important patent case has recently been decided before Judge McLean, in the United States Circuit Court, at Chambers, Ohio. The case relates to Patent Medicines, and however lightly some people may tamper with patent rights, this decision will show that justice is not always to be lightly esteemed.

G. Coffeen, Jr., the proprietor of the Chinese Liniment, applied for an injunction to restrain one James Brunton, an agent of John Loree, proprietor of "Loree's Ohio Liniment." from the sale of the "Ohio Liniment" on the ground that the venders of the "Ohio Liniment" falsely claimed that it was similar to the "Chinese Liniment," and produced that impression upon the community by advertisements, handbills and colored imitations of the labels and directions of the "Chinese Liniment." The injunction was granted. The Judge held that the naming of his medicine by Loree, the "Ohio Liniment," made no difference, as "from the body of the label, and the directions for the use of the medicine, it is clear that the language of the defendant is so assimilated to that of the plaintiff, as to appear to be the same medicine, the alterations being only colorable."

Revolutions in Music.

In our last number we noticed a wonderful piano which had just been brought out in Paris,—where so many wonderful things happen. It will, no doubt, do away with the trouble of learning to play altogether, at least to any person after he or she has *learned* the art. Lo! another discovery is heralded; Professor Ernest Von Heevington, United States, has discovered a new system of musical notation, which a correspondent in the *Tribune* assures the world—"incredible as it may seem, removes all perplexities which have so long laid like an incubus upon this beautiful science, by a method so simple that, in the mind of an illuminati of the profession in this city, its simplicity constitutes an objection. 'Why,' said he with annihilating emphasis, '*it leaves nothing for the mind of the performer to do.*'"

Wonderful, if true, but the difficulty in introducing the new method, will be the *difficulty* of making people believe it.

"Instead of using those semi-divisions for the chromatic scale called sharps and flats, or any of the machinery connected with them, which creates the language of musi al composition, the inventor *simply uses black and white notes.* The divisions of time remain the same, but the orthography, grammar, all else, in fact, is changed, simplified in its mechanical construction."

Du Bois' Cotton Gin.

In the description of the Cotton Gin of Mr. John Du Bois, which appeared in the last number of Vol. 4, lest any person should by mistake apprehend that the small auxiliary brush in the chamber above the large brush, is there for the purpose of taking off mots, we would say that the mots are disengaged by the action of the saw, and the brush is there to take them away and keep them from accumulating. This brush cannot be put into the common gin unless the short ribs, as represented in the engraving, are put in also.

South Carolina Institute Fair.

The first Annual Fair of the Sou h Carolina Institute, will be held in the City of Charleston, commencing on the 17th of this month, and will continue one week. It is to be conducted in the way all our Fairs are at the North. Premiums will be awarded for superior works of art and ingenuity. We hope that this Fair will be a good one, and that this Institute will go on increasing in usefulness and influence. There are good men at the head of it, and it certainly cannot fail to be beneficial in every sense of the word, to South Carolina.

Franklin Institute.

The nineteenth Annual Exhibition of this celebrated institution, will take place on the 12th of October, in the city of Philadelphia. For particulars in relation to it, see circular in No. 49, Vol. 4, of this journal.

Controversial.—Parker's Water Wheels.

We have received some letters relative to Parker's Water Wheels; one from Lycoming Co., Pa., says: "Last year agents of Parker visited all, or nearly all of the saw mills in this section, using Re-action Water Wheels, and demanded from $10 to $35, or upwards, from each owner, for infringemonts of his patent, in the usc of two or more wheels on a horizontal shaft, and confining the water in a box or cylinder, &c., to apply to them." This letter exhibits, no doubt justly, very much feeling on the subject. It further says: "Most of these wheels, and they are various, are patented, and those who used them had paid for the right, and as they supposed, 'a good and valid one.' These agents showed printed statements of a decision in Ohio, in favor of Parker, and some paid, while others refused. It further states that suit was tried in the Western District of New York, at the last July Term, between Parker and Ferguson, in which Parker was defeated."

The letters call upon us to warn mill owners from paying contribution to the agents of Parker, who are out levying the same.

It would neither be just nor honorable in us to do this. There are about thirty patents on re-action water wheels. Are all those wheels essentially different? No man should buy a patent right unless he has a full knowledge of what the patent claims. If Parker's claims are unjust—if they are mere pretensions, and he not the real inventor, why do not those who say they are imposed upon, unite together, give it a *fair* trial (let them be candid in this respect) and get the patent rendered null and void. If Parker is the original inventor of what he claims, let him be sustained. It is our opinion that the 16th section of the Patent Laws, 1836, gives the District Court, upon positive proof in Equity, the power to render a patent void, if wrongly granted.

Trial of Rioters.

The trial of the Astor Place Rioters, which has excited so much attention during its progress, was brought to a close on Saturday last, and the prisoners convicted of the charges brought against them. The ringleader, Judson, was sentenced to receive the full penalty of the law, being one year's imprisonment in the Penitentiary at Blackwell's Island and to pay a fine of 250 dollars. The sentence of the others was lighter, in consideration of their youth and previous good character; but in the case of Judson, Judge Daly remarked in passing sentence, that he regreted that the penalty was no greater, as it plainly appeared from the testimony given on the trial, that Judson was the leading spirit in the riot, and was the first to suggest the firing of the theatre, utterly regardless of the appaling consequences that must have ensued from such an act of diabolical incendiarism, the house being closely packed with human beings. It is difficult to conceive of a mind so fiendish in its tendencies as to make such a suggestion, and this man when asked by the Judge if he had anything to say, why sentence should not be passed upon him, made a long speech in laudation of himself and his acts, asserting unblushingly, that he suffered a martyr to the cause of truth, which assertoin was probably as near the truth, as any he ever made.

We cannot commend too highly the course pursued by Judge Daly during the whole of this trial, which it was feared, by all order loving citizens, would turn out a mere farce, if it were not allowed to pass by entirely.

The Judge's charge to the Jury was one of great power, and does equal credit to his position as a Judge, and his character as a man.

Notice to Advertisers.

In answer to numerous enquiries in relation to our terms for advertising, we would state that we do not intend to appropriate but two columns of the Scientific American for that purpose. Each advertisement intended for this paper must not exceed 16 lines, and cuts cannot be inserted at any price. Terms:—1 square of 8 lines, 50 cents, each insertion; 16 lines, $1. We do not intend to fill this journal with advertisements to the detriment of its readers, notwithstanding it would be profitable for us to do so.

To our Friends.

It is the object of the publishers of this journal to render it as useful and interesting as possible, and they will be pleased at any time to receive communications from their friends throughout the country, upon such subjects as may tend to interest the lover of natural as well as artificial curiosities. They would like particularly well to be furnished with short articles upon the various manufacturing interests. This would not only be beneficial to those interested, but to the count y generally. We hope our friends will not be backward in writing for their own paper.

British Mail Steamer, the Hibernia.

This powerful old steamship, which struck upon a rock on the coast of New Foundland, was sent back to this city, like as the Britannia had been, for repairs. She was placed upon the Sectional Dry Dock, near Peck Slip, and was repaired by Messrs. McPherson & Gray, in about eight days.

Had not the Hibernia been a very strong built vessel she had been wrecked; no ordinary ship could ever have got off that rock again. The copper was stripped off in part, and all the heel of the stem and the forward part of the keel and dead-wood, and heels of cants, are carried away; full eight feet up the stem and about thirty feet aft of the keel were destroyed. The rock on which she remained half an hour, must have hit her in the stem with terrible, force.

To prevent the water from filling the ship they promptly built a box and caulked it carefully, forward near the leak, and thus prevented the waters from gaining on them all through the ship; they then put back for Halifax, from whence she had to come to this port to get repaired. The Section Dock, in New York, is a splendid invention.

World's Exhibition of Industry.

Prince Albert has projected for next year an Exhibition, on an unparalleled scale, in Hyde Park, London, to which all the world is invited to send contributions. The prizes, some of which amount to $24,000, are to be distributed by the Queen herself. Some of our Yankee friends must be up and doing; there are prizes before them which they must take. Just conquer England (not an easy job) by genius on her own shores, and then what?—the world's yours.

Worcester Mechanics' Fair.

This Fair, which closed last week, was the best exhibition ever seen in that county. The entries were about double the number of what they were last year, and the articles exhibited were an honor to old Mass. To show the importance of the Worcester County Mechanics' Associasion, and the value that is placed on the opinions of the Examining Committee, there were no less than fifteen beautiful pianofortes exhibited, which were built in Boston by eight different companies.

Georgia Manufactures.

At a late Agricultural Fair, held at Stone Mountain, Geo., there were some excellent specimens of cotton cloth exhibited, and also two fine power looms, which were made in that State. Sewing thread and fine paper, made in Georgia, were also exhibited, which received high commendations.

Albany Iron Works Burned.

The buildings belonging to the Albany Iron Works of Messrs. Corning, Winslow & Co., situated about two miles south of Troy, were destroyed by fire on the 27th ult. The buildings consumed were those occupied as the Spring, Spike and Nail Factories. The fire originated in the Spike Factory, and beside the machinery 800 kegs of nails were destroyed. The loss is estimated at $40,000 above the insurance. This establishment gave employment to quite a number of men, who are thus thrown out of employment at a bad time of the year.

The last annual report of the Secretary of the Treasury on the commerce and navigation of the United States, presents "the State of Ohio, an entirely inland State, as the sixth in point of ship building."

The tobacco crop in Kentucky has been very good this year.

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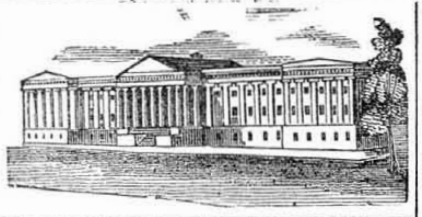

LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending September 25, 1849.

To Henry Bryant, of Hartford, Conn., for improvement in Frames for Stretching Canvas. Patented September, 25, 1849.

To Foster Newell, of Mass., for improvements in the Spinning Jack. Patented September 25, 1849.

To Edwin B. Horn, of Boston, Mass., for improved Door Lock. Patented September 25, 1849.

To Alexander Moffit, of East Bethlehem, Pa., for improvement in the motion of Riddles, in Winnowing Machines. Patented September 25, 1849.

To Peter W. Hardwick, of Wayne Co., Ind., for improvement in Paring and Coring Fruit. Patented September 25, 1849.

To Sheldon S. Hartshorn, of Naugatuck, Conn., for improvement in Suspender Buckles. Patented September 25, 1849.

To James D. Green, of Cambridge, Mass., for improved form of the air chamber of Life Boats. Patented September 25, 1849.

To Hazard Knowles, of Washington, D. C., for improvement in Cauls for Veneering. Patented September 25, 1849.

To Levi Beach, of Bristol, Conn., for improvement in the mode of applying Springs in Time-pieces. Patented September 25, 1849.

To Thomas E. Warren, of Troy, N. Y., for improvement in Springs for Chairs. Patented September 25, 1849.

To Edward Bourne, of New Bedford, Mass., for improvements in Dentists' Forceps. Patented September 25, 1849.

To Samuel Mann, of Alstead, N. H., for improvement in Self-acting Cheese Presses. Patented September 22, 1849.

To James P. Ross, of Lewisburg, Pa., for improvement in Seed Planters. Patented September 25, 1849.

To H. & L. D. Benson, of Jackson, Pa., for improvement in machinery for Jointing Staves. Patented September 25, 1849.

To Charles Atwood, of Birmingham, Conn., for improvement in attaching hooks and eyes to cards. Patented September 25, 1849.

To Jer. Ess x, of Bennington, Vt., for improvement in Shower Baths. Patented September 25, 1849.

To S. McCleary & J. Pierce, of Hoosick, N. Y., for improvement in making Dissected Maps. Patented September 25, 1849.

To C. Reed & E. Howe, of Cambridgeport, Mass., for apparatus for opening and closing Blinds. Patented September 25, 1849.

To A. Linhart & S. M'Chain, of Fulton, Ohio, for improvement in the construction of Grain Carriers. Patented September 25, 1849.

To Pierpont Seymour, of East Bloomfield, Y. N., for improvement in Devices for sowing seed in Grain Drills. Patented Sept. 25, 1949.

RE-ISSUE.

To E. B. Bigelow, of Clintonville, Mass., for improvement in Power Looms. Patented Feb. 18, 1846. Re-issued September 25, 1849.

DESIGNS.

To James Wager, of Troy, N. Y., for design for Stoves. Patented September 25, 1949.

To James Wager, of Troy, N. Y., for design for Stoves. Patented September 25, 1849.

To John N. French (Assignee of Calvin Fulton) of Rochester, N. Y., for design for Stoves. Patented September 25, 1849.

Propeller Tow Boats.

Philadelphia has become famous for building propellers; she is now building a number of boats with the Loper Propeller, for various places. She has just built one for Baltimore, named the Charles H. Haswell, in honor of the Engineer-in-Chief of the Navy, and one named the Hornet, for this city; there is also one large one on the stocks to be used as a tow-boat in Charleston, S. C.

Trial by Jury in Patent Cases.—No. 1.

We have perused, with no small degree of pleasure, two articles on Patent Cases, in the Charleston (S. C.) Mercury. The articles are commentaries on two decisions made by the U. S. Circuit Court, in two different cases of alledged infringements of Woodworth's patent on Planing Machines.

The first case is that of Motte vs. Bennett, which took place in Charleston in the month of May last, Motte being owner of the Woodworth patent, and Bennett owner of Gay's. The bill was filed for an injunction, as being an infringement. The next is that of Wilson vs. Barnum, before Judges Greer and Kane, and which has already been noticed by us, and which is to be tried by Jury on the 15th of this month. As far as it regards the decision rendered, in the case last mentioned, the author of the articles finds no fault—it is in accordance with his own views, but it affords him a subject for a scathing review of the decision rendered in the case of Motte vs. Bennett, because they denied a trial by Jury, and went a step farther. But let us hear what he says:

"We thought their (Judges Wayne and Gilchrist's) claim to *unrestrained discretion*, and their bold and contemptuous denial of a trial by jury, in a case where that common-law privilege never had been, and never could have been denied, *even* in England, would be an unscrupulous step towards the entire abrogation of the ninth article of our State Constitution, which solemnly guaranties to our citizens the perpetual right of *trial by jury*, ("*judgment of their peers*") and which the State is bound to protect and preserve to them. The case at Philadelphia and the one here are precisely the same. In each case it is a conflict between two Patents. The same grounds were taken, the same issue raised, and under the same state of facts, in one case as in the other; and yet the decisions are exactly the reverse of one another. The pro-consular power claimed in South Carolina was, it seems, too arrogant to find favor in Pennsylvania.

Judges Wayne and Gilchrist have filed their decree, in which, (as was understood it would be long before the hearing) they give to the Complainant all he asked, to wit: an injunction, and an account from the defendant of the profits actually made by him, by his alleged infringement upon the rights of the complainant. This was the whole prayer of the complainant; and the late Mr. Bailey, who filed the bill, was too good a lawyer, too upright a man, and too sensitive of subjecting his profession to ridicule, to have asked *more*. But the Judges of the Federal Court could not restrain themselves within the limits which restrained and satisfied a profound lawyer and an able abvocate. They have gone further; and, not to speak figuratively, have "out-Heroded Herod himself." They have awarded *consequential damages;* aud instead of a jury of the country, they have appointed a very respectable lawyer, with full power to send for persons and papers *pro hac vice*, take testimony, and assess "the *damages* which the complainant has sustained from the use of the defendant's machine." He is ordered "to ascertain such *damages* as had been sustained *before the commencement of this suit*!" In order to ascertain such damages, he is directed to ascertain and assess as damages, &c. "what would have been the profits to the complainant, if any, of preforming the same amount of work with the *Woodworth* machine, which shall have been performed by the defendant's machine." "He is also to ascertain the *damages*, if any, which, the complainant has sustained by reason of any reduction of his profits in Charleston, in consequence of the erection and use of the defendants's machine." It must be recollected that Mr. Bennett was charged by the bill with an infringement of the complainant's patent right. He denied the infringement, and he denied the complainant's patent right, and alleged that it was fraudulent and void. He also set forth that the machine used by him was also a PATENT, and good against the complainant's; and he urged a trial of these simple *issues* by a *jury*. This was the only question urged or made by his counsel. Now the Act of Congress of 1836, authorises the Court "to grant injunctions according to the course and principles of Courts of Equity.' The question then, is: What *is* "the course and principles of Courts of Equity?" The counsel for the defendant contended that the course well established and recognised in England and in this country, is, upon an application for an injunction, where the legal rights and the facts were disputed, for the Court to use its discretion, and grant a *provisional* or *interlocutory* injunction, UNTIL the facts in dispute could be settled by a trial at law and the verdict of a jury; and to order such a trial, either by an issue, or by an action of law, or refuse the injunction, according to the circumstances of the case. If the complainant made out, by his bill and affidavits, a plausable *prima facie* title to the relief he asked, if in case he should succeed in establishing his title and right at law, the mischief done to him in the meantime should appear to be irremediable, then the Court will grant the injunction *until* a trial at law, and will order the complainant to bring his action. Sometimes the complainant will be required to indemnify the defendant, and sometimes the defendant, as in this case, will be allowed to give the complainant a bond of indemnity, keeping an accont at the same line, or be enjoined *nisi*. Gov. Seward for the complainant, denied this to be "the course of Equity" in this country or in England, and the Court either sustained or followed Gov. Seward. Now the fact to which our attention has been called is, that Judge Wayne boldly asserts that the practice and "course of Equity" in England has not been what the defendant claimed it to be "*since* 1761."—"That the practice in England is and has been co-incident with his views, and against the defendant's for *almost a hundred years*!" "In truth, that what was once the practice in England in respect to patents, has not been the practice there '*for more than eighty years*?"

[NOET.—As this is a most important subject, and one regarding which there has been much acute feeling displayed, we will continue it, and point out a remedy to all parties. Our readers, who are interested in patents in any way, will appreciate this kind of information, as there is nothing upon which they so much desire to be informed as upon Patents. It is our intention to treat the subject calmly—"nothing to extenuate, or aught set down in malice." We have no personal feeling for any one party—our desire is, to "do justly."]

The fly wheel in Ellicott's Rolling Mill, Baltimore, burst on Wednesday, injuring two persons and the building. The wheel was 25 feet in diameter.

Report on Propellers.

The following Report by Charles H. Haswell, Esq., Engineer-in-Chief, we publish in two parts—one this number and the conclusion next week. As information of a particular nature, and of a kind very valuable to many of our readers—it will be very interesting and be used for reference.

OFFICE OF ENGINEER-IN-CHIEF, U. S. N.

SIR:—I have the honor, in compliance with your direction, to submit the following report, in regard to the use of Mr. J. B. Emerson's propeller in the service of the Government of the United States, as called for by the Secretary of the Navy.

Mr. Emerson has made claim for patent fees, for the use of his invention, for twenty-eight propellers in the service of the United States. Of them, four only are or have been owned by the Navy Department, viz.: the Princeton, Water Witch, Scourge, and the steamer now in progress of construction at the Navy Yard, Brooklyn.

Seventeen were built or purchased by the Quartermaster General, for the use of his department, viz: the Eudora, McKim, Edith, Washington, Tompkins, Trumbull, Walker, Buchanan, Stevens, Virginia, Massachusetts, Ashland, Marcy, Stanton, J. R. Thompson, Mason, and the James Cage.

Three were built by the Treasury Department, viz: the Legare, Jefferson, and Spencer; one is a duplicate charge, the Bangor, being the original name of the Scourge, and the remaining three are unknown in any of the departments of the public service, as far as I have been able to ascertain.

Of those employed by the Navy Department, the Princeton, when first constructed, had an Ericsson *screw* propeller; at this time she has a Stevens' scull.

The Water Witch, for a brief period, had two of Loper's *flat bladed* propellers. The Scourge, purchased by the Department in 1847, and sold in 1848, also had two of Loper's *flat bladed* propellers, and the San Jacinto is to have a screw propeller, the design for the construction of which is not yet made.

As to the propriety of the memorialist's preferring a claim at this time, it appears that a suit instituted by him against Hogg and Delamater, of New York, for the manufacture of Ericsson's propeller, as an alleged violation of his right, has been pending with varying results in the courts of New York, for some four years, and is now referred to, and awaits the final action of the Supreme Court of the United States.

Howard's Reports, referred to by the memorialist, (at page 2,) shows that the judgment in the case cited was suspended, and on making inquiries in the proper quarter, I learn that no disposition has yet been made of it.

In the absence, then, of a judicial decision as to the right of the memorialist in the instrument of Capt. John Ericsson, and of any legal claim to the instrument of Captain R. F. Loper, it is proper to consider their claims as set forth in their several specifications, which must govern the letters patent granted to them by the Commissioner of Patents.

1. Claim aud specification of Mr. J. B. Emerson, the memorialist, of March 9, 1834.

"I (also) claim the spiral propelling wheel constructed and operating in the manner of which I have set forth," which is as follows, "This spiral I make by taking a piece of metal of such length as I intend the spiral propeller to be, and of a suitable width, say for example, eighteeen inches; this I bend along the centre, so as to form the sides, say of nine inches in width, standing at right angles, or nearly so, to each other, and give to it longitudinally the spiral curvature which I wish. Of these pieces, I prepare two, three or more, and fix them on to the outer end of the paddle shaft, by means of arms of a suitable length, say of two feet more or less, in such a position that the trough form, give to them longitudinally, shall be effective in acting upon the water."

2. Claim of Captain John Ericsson, February 1, 1838,

"I claim as my invention the metallic hoops or cylinders, and the spiral arms or spokes, herein before described, &c."

3. Claim of captain R. F. Loper, February 28, 1844.

"I claim as my invention the before mentioned or described manner of constructing the propellers, by extending their inclined planes or propelling surfaces of the paddles, into the hub or centre portion of the propeller, as set forth.''

4. Claim of Captain John Ericsson, September 9, 1845.

"I claim as my invention the hub constructed with perforated projections, and the combination of the same with the elliptic braces, for the purpose of strengthening the spiral blades."

Thus, it appears that Mr. Emerson describes a particular construction of blade, of a trough form, supported by arms. The trough form is employed neither by Captain Ericsson nor Captain Loper, and this is the only novelty described by Mr. Emersan, as both arms and spiral planes, as distinguished from troughs, have been patented (B. M. Smith 1829) and in use in wheels and propellers for many years.

Captain Ericsson claims the *hoop* or *cylinder* and the *spiral arms* or *spokes*, as described; also, *perforated projections* no the *hub* and *elliptic braces*, and Captain Loper claims the extending of the surfaces of *the blades into their hub.*

How these distinctions are to be reconciled, so as to concede to the memorialist the sole right to the use of the propeller referred to, I cannot for a moment imagine.

[Remainder next week.]

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TO CORRESPONDENTS.

"D. R. of Md."—We forwarded you, on the 24th inst., 1 copy of Agassiz's Geology, 1 Scalpel, and 1 Scribner's Mechanics. The Univercœlum is now published by Messrs. Fowlers & Wells, under the title of "The Spirit of the Age." You will receive a copy from them.

"H. R. of Va."—Your communication has been received and is now undergoing an examination. The examiner, into whose hands it was committed, telegraphs us that he has already reached the end of the first column, and it is not probable that we shall hear from him again under ten days, as it is his intention to examine the drawing in connection with the next column, on his return. To lay all jesting aside, we shall not be able to read the whole communication at present; we are very much driven with business, and will attend to it as soon as possible. We must again urge upon our subscribers the importance of brevity. We can generally understand without too much thumping. Our correspondence is very large, and we are compelled to write short pointed letters, and we ask such in return.

"J. A. G. M., of Ohio."—In answer to your enquiries, we would say that Mr. L.'s machine is regarded by us and all who have seen it as embracing none of the distinguishing features of Mr. W.'s patent. We think the machine a good one. If we can give you any information respecting your other enquiries, we will do so in future. $1 received and credited.

"R. M. McG., of Ind."—We cannot think of any cheap work that would be of advantage to you;—read the Scientific American attentively and it will benefit you more than any publication we think of. $2 received.

"B. & P., of N. J."—$3 received; Mr. A.'s subscription is now paid to Vol. 6, No. 17.

"G. N. R., of Ala."—Yours of the 17th inst. was received, and we send Vol. 5, presuming that you made a mistake in ordering Vol. 4, as that Vol. has just closed. We can furnish you Vols. 3 and 4, bound, for $2,75 per copy.

"A. S. B., of N. Y."—A practical work upon painting cannot be found in this market,—we have had several calls.

"A. S., of N. C."—We received your specification duly, and immediately dispatched it with the drawings to the Patent Office. A cut representing your invention will cost you $8, including a descriptive article published once in the "Scientific American." The invention is secured to you on filing the papers at the Patent Office. Had you not better have an engraving made before the model is deposited in the Patent Office? If you concur with that suggestion, write immediately and enclose the above amount.

"S. A. F., of Ind."—Yours of the 17th inst. came safe; we have forwarded two copies of Ranlett, and entered your name for 6 months, from No. 1, Vol. 5.

"G. W. S., of Pa."—Your letter containing $5 has been received, and each subscriber's name entered for 6 months.

"W. C., of S. C."—We can send you Morfit's Chemical Manipulations by mail, properly bound. We cannot furnish a work upon lime burning, but it is our intention to publish a series of articles upon that subject before the close of this volume.

"J. L. C., of Ohio."—Your kind favor has been received and attended to, as per request. Please accept our thanks for this manifestation of your esteem.

"W. B., of Mass."—A cubic foot of hydrogen gas will sustain a weight of half an ounce, consequently it would require 200 cubic feet to sustain a weight of 100 oz. This includes the weight of the material used in constructing the balloon. The expense of manufacturing this gas depends much upon the facilities you have for obtaining it. Oiled silk is considered the best material for covering, being the lightest and at the same time possessing more strength than most any other substance of equal weight and extent of surface.

"J. A. S., of Mass."—Your article upon "Ornamental Gardening," has been received. It could not have been original with you; the same article appeared as original in the Columbus Democrat, and afterwards copied into Richard's Weekly Gazette. We have forwarded it to you for examination, and have nothing more to say.

"A. A. M., of Vt."—Your enquiries would subject us to much trouble and do not properly come within the range of our business. You had better address the parties interested and run your risk.

"L. W. D., of Vt."—Your letter enclosing $2 has been received, and credited for Vol. 5 complete; the back numbers of the fourth volume cannot be furnished.

"C. W. M., of Pa."—We can conceive of no possible advantage arising from using a magnet in a vacuum, as its power of attraction would be no greater in the vacuum than out. The resistance of the air would be taken away, 'tis true, but being removed from all sides of the weight equally, no advantage would be gained. A feather and a piece of metal will fall with equal velocity, when placed in a vacuum and allowed to obey the law of gravitation; but we do not from this fact infer that the power of gravitation is greater under these circumstances. $5 received and appropriated as per request.

"J. J. R., of Geo."—Your letters have been handed to responsible parties for attention.

"M. C. H., of Geo."—We could probably furnish the missing Nos., if you could give us an idea what they are.

"Dr. S. G., of Memphis."—Mr. C., of your place, paid $2 on your account, therefore your subscription does not expire until No. 26 of Vol. 6. Thank you for the compliment to the Sci. Am. We mean to make it worth the subscription price.

"J. H. Q., of Phila."—We cannot re-publish your Engraving in the "Sci. Am.." it is entirely against our rule. If possible we will exhibit the model at the Fair.

"E. T., of Ill."—You will hear from us soon.

"J. M. C., of Pa."—Six numbers of Ranlett's Architecture were forwarded to you on the 1st inst., by mail.

Z. C. L., of Mass., A. S. of N. C., E. R.R. of Vt., and J. C. R., of Ct.—Your papers have been forwarded to the Patent Office.

Money received on account of Patent Office business, since Sep. 25, 1849 :—

A .D. B., of Geo., $20; A. B., of N. Y., $10; E. B. R., of Vt., $20; D. L. G., of N. Y., $30; J. C. R., of Ct., $60.

Patent Agency.

☞ From our long acquaintance and experience in Patent Office business we have no hesitancy in asserting that we are better able to judge the merits of new inventions, and are better capable of advising upon all subjects pertaining to Patents than any other concern in the United States.

Any business connected with the Patent Office may be done by letter through the Scientific American office with the same facility and certainty as though the inventor applied in person. Our prices too (another important consideration to inventors) are, but about half as much as the charges of most agents, as the amount of business which we do, and that in connection with the publication of the Scientific American renders to us superior advantages over all other agents.

Having been often complimented by those who have entrusted their business in our care, we here repeat what very many have said: "The best Patent Agency in the U. States is at the Scientific American office."

All models, drawings or communications sent to the Scientific American office for inspection, are deposited from the eyes of the public until the necessary application for securing the invention has been made.

The best of artists are constantly employed to make drawings from models, and our corps of specification writers are composed of gentlemen formerly connected with the Patent Office at Washington as examiners.

All communications should be addressed to
MUNN & CO., Scientific American Office,
Post Paid. (d16) New York.

DAGUERRIAN MATERIALS.—JOHN ROACH, Optician, 79 Nassau st., N.Y., is manufacturing American Cameras of imported Flint Glass, which are warranted equal to any. Also, on hand, Voightlander Cameras. Plates, Cases, Chemicals, &c. Galvanic Batteries for gilding and silvering. Electro Magnetic Machines for medical purposes. Thermometers wholesale and retail. Object Glasses of various sizes, ground to order and warranted achromatic. 2 10*

LITERARY "CORNER STONE."— "Once possessed of a work so able, copious, and scientifically constructed, as WEBSTER'S QUARTO DICTIONARY, one discovers a hundred benefits previously unthought of. Old uses and new uses, and disuses and abuses,—old terms, and new terms, and the history of the rise and progress of terms,—together with apt citations, pointed and sparkling,—with other benefits I need not attempt to enumerate,—combine to make him feel the work a desideratum—to lay it as a corner stone in his library. Or rather—since corner stones are not often disturbed—as a janitor—a librarian,—ever at his post, ready to converse on whatever topic is at hand."
July, 1849. Charles Beecher.
Published by G. & C. MERRIAM, Springfield, Mass., and for sale by all Booksellers. 2 2*

LAW'S NEW PLANING MACHINE— For boards and plank, is now in operation in this city—planing, tonguing and grooving at the same time, with rapidity and beauty. It is believed to be superior to any other machine, as it will do the work of two or three rotary machines, and for all Southern, and the majority of Northern lumber, the execution is much better.
Machines, with rights for States, or Counties, can be had by applying to the subscriber, at 216 Pearl street, or at Collyer & Dugand's mill, foot of West Fourteenth street, where the machine is at work.
2 tf H. LAW.

DANIELS' PLANING MACHINES— Manufactured by BALL & RICE, successors to Thomas E. Daniels, Worcester, Mass. All orders promptly attended to, and at such prices as cannot fail to give satisfaction to all who may favor us with their business.. 2 3m*

STEAM ENGINES FOR SALE.— A number of Steam Engines, of one, three and five horse power, will be sold cheap, at No. 2 Bethune st., N. Y. They are all made of the best materials, compact, and well put together, and can be seen running. This affords a good opportunity to those who wish to purchase. Address J. WILEY, as above.
2 3*

THOMAS E. DANIELS' PLANING MA- CHINES—Manufactured by HOWE, CHENEY & CO., Worcester, Mass. All orders for the above machines executed at short notice and satisfactory prices. 2 4m*

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m1 tf 166 Fleet street, London.

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Augusta, Me., Oct. 28, 1848. o28 1y

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☞ The Second Exhibition of the Maryland Institute for the Mechanic Arts, will be held at Washington Hall, in the City of Baltimore, from Thursday, 27th of September, to 18th October, inclusive. Machines, models, or goods sent to the address of H. Hazelhurst, Corresponding Secretary of the Institute, (expense paid) will be met with immediate attention, and every facility used to exhibit the same to the best advantage. j16 4m

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PATENT AGENCY.— SAMUEL C. HILLS, No. 43 Fulton street, New York, Patent Agent and agent for the sale of Patent Goods and Patent Rights—still continues to aid and assist inventors in procuring Patents and selling Rights. Charges moderate. Applications per mail must be post paid. m26 tf

Scientific Museum.

Mineral Ores.

Tin exists principally in primitive rocks (granite and felspar, porphyry, &c.,) appearing either in interlaced masses, in beds, or as a constituent part of the rock itself, and sometimes but rarely in distinct veins; sometimes tin ore is found in alluvial earth, filling up low situations between lofty mountains, being washed down by the rains from the decomposing rocks.

Gold occurs either in beds or in veins, frequently in primitive rocks, (sienite, greenstone porphyry, &c.,) though it is found in other formations, and particularly in alluvial earth.—the gold of alluvial distrtcts occurs, as well as alluvial tin, among the debris of the more ancient rocks.

Silver is found particularly in veins and beds in primitive and transition formations, though some veins of this metal occur in the secondary strata. The rocks richest in it, are gneiss, mica-slate, clay-slate, greywacke, and old mountain lime stone. In the secondary rocks, the silver is generally found in combination with the ores of lead and copper.

Copper exists in the primary and transition series of rocks in the form of copper pyrites in masses and in veins. In the secondary strata it exists in beds of cupreous schist.

Lead abounds particularly in the primary and transition rocks, either in the form of veins or beds or sulphate of lead (galena.) In the secondary strata, the same ore is found associated sometimes with ochreous oxide of iron and carbonate of zinc.

Iron is met with among the primitive rocks in beds sometimes of enormorus size, in the form of peculiar iron ore and magnetic iron ore; the ores of red or brown oxide of iron (hæmatie) are found generally in veins, or occasionally in masses with sparry iron both in primitive and transition rocks, as also sometimes in secondary strata, but more frequently in the coal-measure strata; as beds of clay, ironstone, of globular-iron oxide, and carbonate of iron. In alluvial districts are found ores of clay, ironstone, granular iron-ore, bog-ore (generally containing a little silver), swamp-ores which belong to the primtive period have almost always a metallic aspect, with a richness amounting to even 90 per cent. of iron, while the ores in the latter formations become more and more earthy down to those found in alluvial deposits some of which contain but 20 per cent. of iron, though its quality is often so good as to render its working profitable.

Mercury occurs principally among rocks of the secondary series, along with sulphur, &c.

The most abundant deposits of cobalt are veins in the primitive rocks; small veins containing this metal are, however, to be found in the secondary strata.

Antimony occurs in veins and beds among primitive and transition rocks.

Zinc occurs particularly in the primary and transition series, as sulphuret of zinc or *blend*; and in the secondary strata, as calamine or carbonate of zinc, along with oxide of iron, and sometimes with sulphuret of lead.

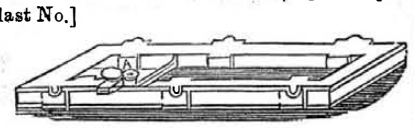
Large Flower and Bird.

In 1818, Dr. Arnold discovered in the Island of Sumatra, a flower which he named the Ruffisia Arnold, and which an author has called, with much justice, "the magnificent Titan of the vegetable kingdom." The human mind indeed, has never conceived such a flower; its circumference, when expanded, is nine feet; its nectarium is calculated to hold nine pints; the pistils are as large as a cow's horns, and the entire weight of the blossom computed to be about 15 pounds. Temple, in his recent travels in Peru, states that he shot a condor, and from notes taken on the spot, gives the following dimensions of its size:—When the wings are spread, they measure forty feet in length, and the quill part eight inches in circumference. This almost realizes the fabled rock of Sinbad, in the Arabian Nights; but its dimensions, as here given, rest on good and recent authority.

Hollow Iron Moulding.

(Continued from page 16.)

The form of the pattern of the *sole* plate leaves in the sand, a plain open space the same breadth as itself, and cores of sand of the internal hollow parts are introduced into the moulding to complete the figure of the casting. Figure 7 is the underside of the pattern. At A the patterns of the steam ways are placed; they are held from lateral shifting by small pins. They are made solid, so that they, too, like the plate itself, require to be cored out, and, accordingly, the prints, for securing the cores in their positions, are added to the patterns of the flange, when itself is attached loosely to the pipe patterns. On the opposite side of the main pattern, prints are likewise fastened to receive the other extremities of the pipe cores. In like manner, prints are attached to the upper side of the pattern, to receive the cores for the column sockets, fig. 6. [See last No.]



A level bed in the sand upon the floor, of sufficient extent, is, in the first place, prepared for the pattern, which is then set down upon it, and well bedded in its place, which is effected by blows given to it over the surface—the object being to form a comple impression of the under surface of the pattern. Sand is farther laid in and rammed about the pattern on all sides, till it is brought up flush with the upper side, forming thereby the parting surface, on which parting sand is strewed.

The next stage of the process is to lay the upper box or boxes, over the pattern, and to fix them in their places by stakes of wood driven into the floor, which also guide us to replace them accurately when removed. If there be not a single box large enough to embrace the whole of the pattern, two or more smaller boxes are placed end to end over it, resting upon the sand external to the moulding, and answering the purpose of a single box.

Here, it is evident, that as the platform or cylinder-plate, is now on the under side of the pattern, the body of sand filling the space immediately above it to the level of the upper side, must be lifted out to get the pattern removed. At the same time, the weight of such a deep body of sand adhering to that in the over-lying box, would overcome their cohesion, it would break away altogether. As the box is therefore incapable of carrying it with it, it becomes necessary to have this load of sand supported by independent means. An iron frame is cast in open sand of the same form as the sunk space, but somewhat smaller, as allowance for the contraction of the casting, in the course of cooling, must be made to allow the plate to be withdrawn, after the casting is executed. In cases where this precaution has not been sufficiently attended to, the jamming of the plate, enclosed on more than one side, has been the natural consequence, and sometimes the destruction of the casting by consequent fracture. In the centre of the frame a sufficient opening is allowed for the steam ways. This frame is laid in the bottom of the recess, and as its under-surface now faces the moulding, it must be enveloped on that side in the sand, to protect it from the immediate action of the metal afterwards poured into the mould. To assist its adhesion the frame or plate is studded on the under side with numerous, tooth-like projections, which are imbedded in the sand applied. Sand is now thrown in above the plate, surrounding the steam ways, and well-rammed, its parting surface being made flush with the upper edges of the pattern of the pipe flange in the centre, and of the contiguous body of sand, forming the interior part of the moulding, their parting being just over the stiffening flange of the cylinder bottom. With this preparation, the upper boxes, as already said, are set down and filled.

There are prepared six pouring-gates (gits) to the moulding, and eight flow-gates. Of the pouring gates, or those by which the moulding is filled, two are placed along each side about four feet distant, and two at the cylinder-end of the moulding, while none are made at the other end. This unequal division is necessary, on account of the heavier nature of the moulding at the cylinder end; the design of the whole being to have the moulding filled uniformly. The flow-gates are distributed equally over the moulding. These will be again referred to.

Before lifting off the upper boxes, the pattern being now completely moulded, the latter is so far loosened in the sand, that this may not stick to it, and so spoil the operation. This is effected by gentle jolts communicated to the pattern by means of one or more pieces of rod iron, which have been screwed vertically into the pattern before finally ramming the sand in the upper box, or which merely enter into holes in the pattern. These rods being sufficiently long to pass out through the sand when the box is filled, it is upon their upper extremities that the blows of the hammer are given both horizontally and vertically; the force being regulated by the weight and magnitude of the pattern. The rods, unscrewed if necessary, are now drawn straight out, and the upper box is in readiness to be lifted smoothly off.—(*The conclusion of this section of the subject will appear in our next.*)

Report on the Alledged Discovery of New Properties of Steam.

The American Academy of Arts and Sciences, at Cambridge, Mass., is one of the best, and, in some respects, the very best institution in the Union. From time to time it issues scientific tracts of the *right sort*, because they contain the simple elements of truth, by describing the experiments performed to test certain propositions, and setting forth the results of the same. The following report is one which will be of interest to many of our readers, as we know that more than one of them have been experimenting in the same line.

"The Rumford Committee, of the American Academy of Arts and Sciences, having examined the paper submitted by James Frost, Esq., of Brooklyn, New York, and entitled, 'Description of the Causes of the Explosions of Steam-boilers, and of some newly discovered Properties of Heat, and other matters: for the Purpose of showing that the Application of Steam for the Production of Motive Force is susceptible both of immense Improvement and Economy,' respectfully report:—

The chief points which the author claims to have established are,—

1st. That steam of 212 deg. Fahr., heated, out of contact with water, to 216 deg., doubles its volume; and heated to 228 deg., increase its volume threefold.

2d. That steam of low tension, heated to somewhere about 650 deg., is converted into another body, which the author calls "stame," and which, under favorable circumstances, becomes six times as effective as steam not so heated.

As, in the view of the author, the question of discovery rests upon the truth of the first of these two propositions, the attention of the committee has been particularly directed to its consideration. To this end, the apparatus employed by Gay-Lussac in his determinations of the tension of aqueous vapor at different temperatures was constructed, and a series of experiments made upon steam heated, out of contact with water, from the boiling point to 233 deg. 6 min. The results arrived at were as follows—

A volume of steam at 212 deg. Fahr., measuring 15.80 cubic centimetres, or 1580 parts, heated to 216 deg., became 1600 parts, and heated to 228 deg., became 1630 parts. According to Mr. Frost, 1580 parts at 212 deg. should have become 3160 parts at 216 deg., and 4740 parts at 228 deg. In tabular form we have, at

Degs.	Exp.	Frost.	Dif.
212	1580	1580	——
216	1600	3160	1560
228	1630	4740	3110

The whole expansion of the steam, when heated from 212 deg. to 228 deg., was a little more than one thirtieth of its volume at 212 deg. According to Mr. Frost, it should have been more than ninety times as great as the committee found it to be.

The experiments of the committee were made with steam under a pressure ranging from 24 to 24 1-2 inches of mercury, that is, under less than atmospheric pressure. This condition could not influence the result unfavorably to the view of Mr. Frost, since the less the pressure, the greater is the expansion with a given elevation of temperature.

O. N. Hosford, Chairman."

[The results for higher and lower temperatures are given in a large table, with the exception of which, the above is the full Report, and settles the question.

LITERARY NOTICES.

We have received from the Graefenburg Company, No. 50 Broadway, a copy of The Manual of Health. It is well got up and is filled with useful information for family reading, in relation to the preservation and restoration of health. To say the least a perusal will not injure any one, and we hope it will have an extensive sale. Price 50 cents, containing 300 pages.

Mr. Minifie, author of the popular Mechanical Drawing Book, has just issued an abridged edition of this work for schools, containing 48 steel plates and a clear illustration of Geometrical Rules. The price of this work is fixed at $1,50, and it is hoped it may become generally introduced into the schools throughout the country. We are prepared to supply orders for both editions Prices $3 and $1,50.

The Invisible Gentleman, is the title of a new novel, published by Messrs. Dewitt & Davenport, 156 Nassau street, this city. It is a very entertaining publication, and will be read with avidity by all lovers of romantic literature. Price 25 cents. It can be sent by mail.

Horn's United States Rail Road Gazette and Tourist's Guide, comes to us very much enlarged, and now equals, in this respect, any journal published in this city. It contains diagrams of every Rail Road in the country, with the table of the distances between each town, and the time of departure of the several trains. It also contains a summary of general weekly intelligence and useful reading. Mr. Horn is an enterprizing gentleman and deserves well from the public, and we wish him every success. The Gazette is published at 126 Nassau street, N. Y., at $2.

Ranlett's Architect.—Number 8 of this truly excellent work has just been received; it has a first rate article on "permanent dwellings," and contains five excellent plates, describing designs for a Vinery and Green House, with sections, and good perspective views of four cottages, in the English, Italian, Swiss, and Rural styles.

The Pathfinder and Railway Guide, a very neat and useful Travelling Guide, can be obtained at the Pathfinder Office, 123 Fulton st., N. Y. Published every month by Geo. K. Snow & Co., No. 5 Washington st., Boston.

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